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# PEOPLE'S REPUBLIC OF CHINA SCIENTIFIC ABSTRACTS

No. 200

This serial publication contains abstracts of articles published in selected scientific and technical journals. JPRS is unable to honor requests for original source materials or information as to the availability of full translations of these articles.

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EARTHQUAKE FRONT

AUTHOR: CH'EN Yung [7115 9581]

ORG: None

TITLE: "Should Attach Importance to Mock Experiment of Quake Source Physics"

SOURCE: Peking TI-CHEN CHAN-HSIEN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jan 78  
p 1

ABSTRACT: A mock experiment of the quake source carried out in the laboratory under high pressure and high temperature is one of the many important phases of the studies concerning earthquake forecasting. In order to be able to catch up with the world's advanced level as soon as possible in the said field two things must be emphasized: (1) Strategically, cultivation of the leaders who are not only well-trained in science but also able to perform experiments in order to organize a troop of scientific researchers; (2) Tactically, establishment of modern experimental system which consists of a mechanical part and an electronic part fused together into a single integral system. Development of a modern experimental system is as important as the development of an importance single piece of equipment.

AUTHOR: HSIANG Ch'un [0686 5028]

ORG: None

TITLE: "Phase Change Hypothesis -- Popular Discussion of the Origin of Earthquakes"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 3-5

ABSTRACT: This is Part 3 of "A General Discussion of the Origin of Earthquakes." The important features of the phase change hypothesis of the origin of earthquakes are briefly described with five figures consisting of two drawings, two diagrams, and one graph. The most important outward expression of a phase change is a sudden change in the volume of the minerals and rocks. This sudden change in volume is considered to induce a high frequency earthquake wave. A volume change of the order of 3 percent due to a rapid phase change is considered to be quite sufficient to trigger the release of a large quantity of elastic wave energy within a very small volume. The fact that there is no record of any earthquake originating at a depth in excess of 720 kilometers is in good agreement with an experimental observation that the phase change process becomes reversible at temperatures greater than 700 degrees Centigrade. The necessary

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 pp 3-5]

conditions for a phase change are the changes in pressure and temperature. An earthquake originating at a shallow depth may be due to an explosion as a result of the phase change of a lighter rock which has risen from the deep, while an earthquake originating at a deeper depth may be due to an explosion as a result of the phase change of a heavier rock which has sunken from the shallow. The phase change hypothesis has not been sufficiently proven, especially the mechanisms with which an enormous amount of energy is accumulated, then released in an extremely short time and the generation of the transverse waves, etc. have not been explained satisfactorily.

AUTHOR: None

ORG: Chengtu Base Station

TITLE: "Lung-men Shan and Sung-p'an Earthquake Belt"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78 pp 6-8

ABSTRACT: Sung-p'an, Lung-men Shan region (30.0 - 34.0 degrees North Latitude, 102.0 - 106 degrees East Longitude) is situated at the northern end of the southern section of our north-south earthquake belt. From a preliminary analysis of the temporal and the spatial distributions of the earthquakes of this region based on the historical records and the observations made in the recent years, the following characteristics have been recognized. 1. There is a very well defined periodicity. Historically, an active period and a calm period were found to be approximately 150 years apart. Since the beginning of the 20th century, the earthquake activities of this region have entered into its second active period. Within this active period, there is a clearly defined cycle of relatively active and relatively calm periods, each period lasting approximately 10 years. 2. Of the Sung-p'an quake belt and

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 pp 6-8]

the Lung-men Shan quake belt, the earthquake activities of the former is by far the more frequent and intense than those of the latter. 3. The center of the earthquake activities are found to shift position alternately northward and southward and the amplitude of the shift has been found to increase with the passage of time. 4. There are no well-defined precursory activities before a major earthquake takes place. However, within 2 or 3 years before a major earthquake several earthquakes of medium to strong intensity are found to occur in the regions surrounding the future epicenter of the major earthquake and there is a relatively calm period immediately prior to a major earthquake at the epicenter. 5. The activities of the Sung-p'an earthquake belt are found to echo the activities of the Hsian-shui Ho earthquake belt and the time it takes to respond appears to be growing shorter and shorter with the passage of time.

AUTHOR: None

ORG: Chengtu Base Station

TITLE: "Geomagnetic Anomalies of the Sung-p'an Earthquake"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78 pp 9-11

ABSTRACT: The geomagnetic anomalies that are recorded by many observation stations and are associated with an earthquake of intensity 7.2 that occurred on 16 August 1976 and two other earthquakes of intensities 6.7 and 7.2, respectively, that occurred successively on 22 and 23 August 1976 in the Sung-p'an and P'ing-wu districts in the northern part of Szechwan Province are briefly described and analyzed with the aid of eight figures. The figures include the monthly average value and the daily average value of the vertical component of geomagnetism, the root mean square value obtained from a non-directional magnetometer, the daily average values of magnetic declination, the daily average value obtained from a magnetic variometer. The various stages of geomagnetic anomalies are found to have a definite relationship with the various stages of the growth process of the earthquakes.

AUTHOR: PIEN Pin [0593 2430]

ORG: None

TITLE: "Underground Water Anomalies Prior to the Hsing-t'ai Earthquake"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 12-13

ABSTRACT: The underground water anomalies, abnormal rise or fall of the water level, that were observed over a large area surrounding the epicenter prior to the Hsing-t'ai earthquake of 1966 are described with the aid of five figures. Three of the figures illustrate the geographical distribution of the rise or fall of the well water level recorded for the three earthquakes that occurred on 8 and 22 March and one on 6 May. Two of the figures illustrate the number of observation points where the anomalies are observed vs. the length of time the anomalies existed prior to the earthquake for the two earthquakes that occurred on 8 and 22 March. When there was no impending earthquake, the distribution of underground water anomalies was scattered and irregular. Approximately one day before an earthquake, however, the underground water level was found to rise in the region near the epicenter of the impending quake and to fall in the surrounding area and the distribution of the anomalies became quite regular. The area where the water level was found to rise was found to grow

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 pp 9-11]

rapidly with the approach of the earthquake. After the quake, the distribution of the anomalies was found to become irregular and scattered again. Similar underground water anomalies have been reported in other regions prior to the recent earthquakes. However, an attempt to formulate a correlation between the anomaly and the earthquake must also carefully take into consideration the seasonal, climatic, meteorological and the human factors that can affect the rise and fall of the underground water level.



AUTHOR: None

ORG: Funchou Earthquake Battalion

TITLE: "Ch'uan-chou Earthquake of Degree Eight of 1604"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 14-16

ABSTRACT: The severe earthquake of 1604 whose epicenter was located in the ocean approximately 70 kilometers to the east of Ch'uan-chou, Fukien Province was described. From a study of the widely scattered historical records about this earthquake many features of the quake such as the extent of damage, the area affected, the precursory signs, the preliminary tremor, the aftershock, the phenomena of "ground noise" and "ground vapor," etc. are described. The design and structural characteristics of some of the architecture that withstood the quake are also briefly described. Some of these architectural characteristics can be seen today in some of the private buildings of that area.

AUTHOR: YUN Shu [5089 5771]

ORG: None

TITLE: "Enormous Pressure in the Interior of the Earth"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
p 16

ABSTRACT: From measurement and computation the pressure at the bottom of the earth's crust (30-40 kilometers deep) is found to be approximately  $10^4$  atmospheres. The pressure is  $(1.3-1.4) \times 10^6$  atmospheres at the outer edge of the earth's core and  $(3-4) \times 10^6$  atmospheres at the center of the earth. The maximum static pressure that can be simulated in the laboratory today amounts to  $(2-3) \times 10^6$  atmospheres. Only an impact pressure generated by a nuclear explosion or a dynamic pressure created in the laboratory may exceed the pressure inside the earth's core and reach some  $10^7$  atmospheres.

AUTHOR: KUO Tseng-chien [6753 1073 1696]  
HSIAO Ch'eng-yeh [5135 2110 6777]

ORG: None

TITLE: "In Praise of Chang Heng's Seismometer"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 17-19

ABSTRACT: The world's first seismometer was invented by Chang Heng in 132 A.D. It was said to be so sensitive that it was able to detect an earthquake that human beings failed to notice. A brief description of Chang Heng's seismometer and other seismometers modeled after it is given along with illustrations. A brief history of the inventions of various seismometers of the world is also given. A number of publications from all over the world in which Chang Heng's seismometer has been mentioned or referred to are listed, with the emphasis that Chang Heng's seismometer is the forerunner of the modern seismometers.

AUTHOR: CHU Hai-chih [2612 3189 0037]  
SUN Yu-k'o [1327 3768 4430]  
CHUNG Chia-yu [6945 0857 3731]  
WU Chin-hsiu [0702 6930 4423]  
TS-AI Ling-to [5591 7227 6995]

ORG: None

TITLE: "Expanding and Contracting Earth and Cracks in the Ground"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 20-22

ABSTRACT: A type of surface soil layer is known to expand when it absorbs water and to contract when it loses water. A change in climate or a change in the underground water level can cause contraction of the earth and create cracks in the ground, destroying buildings, roads and dams, etc. This phenomenon is often mistaken as a precursory sign of an impending earthquake. It is very important to be able to tell the difference. The characteristics of the cracks in the ground and on the walls at T'ong-hsian Agricultural Printing Plant are described. The results of a study of the various soil samples taken from around the cracks in the ground are described and the causes for the formation

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 pp 20-22]

of the cracks analyzed. These cracks are found to be unrelated to the earthquakes, however. Nevertheless, a careful study of this type of crack in the ground is also very important regarding the safety of the buildings.

AUTHOR: CH'EN Ch'iung-p'ei [7115 8825 0160]

ORG: None

TITLE: Analysis of Troubles of the Amplifier of a Microseismograph"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78 pp 23-25

ABSTRACT: A breakdown in the amplifier of a seismograph can completely prevent it from recording normally. Model DSL-1 seismograph amplifier is used as an example to illustrate the troubles often encountered during the process of an actual testing and the method of eliminating these troubles are described. The troubles described include: 1. burnt out tube, 2. noise, 3. drifting, 4. asymmetry, 5. no output, and 6. oscillation. There are two electronic circuit diagrams of the amplifier and the specifications of the various transistors used are summarized in a table.

AUTHOR: None

ORG: Anti-earthquake Group, Peking Earthquake Corps

TITLE: "Synchronous Vibrator -- Engineering Anti-earthquake Equipment"

SOURCE: Peking TI-CHEN CHAN-HSIEN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 26-27

ABSTRACT: The synchronous vibrator is a device used for inducing a forced vibration in a structure in order to be able to study its dynamic behavior. A recently developed synchronous vibrator, Model QZJ, of horizontal, single axis, mechanical type also known as rotary double eccentric hammer type is described. The mechanical part of the vibrator consists of two disks to which eccentric weights are attached. As the two disks rotate in the opposite direction, the resulting two centrifugal forces due to the two eccentric weights is a simple harmonic excitation force which acts along the vertical direction. A drawing that illustrates this principle is included. Both the amplitude and the frequency of the excitation force are adjustable. The functions of the electronic part of the vibrator including the speed adjustment, the speed regulation, and the speed measurement are described with an electronic diagram illustrating the "double closed-loop" speed control. The output of the vibrator is 310 kg of 1 Herz and 260 kg at 10 Herz. The total weight of the vibrator is 550 kg and the heaviest single part is 160 kg.

AUTHOR: None

ORG: Station Network Design Group

TITLE: "Station Network Observation and Processing System"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78  
pp 28-31

ABSTRACT: In order to effectively forecast (especially short range forecast) an impending earthquake all the crude data gathered by all the observation points must be transmitted rapidly to the forecasting center where the data can be processed rapidly. Therefore, after the Hai-ch'eng earthquake of 1975 six telegraphic transmission earthquake station networks have been either expanded or newly built in order to be able to accomplish the task. These station networks are capable of doing the following: (1) continuously, reliably, centrally and automatically process the data gathered by all the observation points within that network; (2) determine within 10 minutes all the fundamental parameters of a destructive earthquake that occurred anywhere, here or abroad, and also provide a complete record of the earthquake; (3) store various data on the earthquakes for future study. A station network usually covers an area of 300-400 kilometers in diameter, having 15 observation

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points that are connected to the center by wire as a basic skeleton and 25 more observation points that are connected to the center by radio. The entire system is illustrated with a block diagram and the six major functions of the system are briefly described. These six functions are: 1. earthquake observation, 2. precursory signs observation, 3. data processing, 4. timing service, 5. remote control and standardization, and 6. broad dynamic range and broad frequency band digitized earthquake observation.

AUTHOR: None

ORG: This journal

TITLE: "Narrow and Long Cloud That Appeared Over Ch'in-huang-tao"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78 p 31

ABSTRACT: A cloud, which appears to be the same kind of cloud called "earthquake cloud" by a Japanese scholar, was observed in the sky over the city of Ch'in-huang-tao at 6:10 on 20 February, 1978. The cloud is extremely white and possesses a very well defined outline like a white belt. It was calm on the ground at that time, but the cloud drifted from north to south. It was above the city of Ch'in-huang-tao at around 8:00 and vanished at around 9:00. No significant earthquake has ever been reported since the appearance of the cloud, however. A picture of the cloud taken with an ordinary camera from a rooftop facing south by comrade Sun Kuo-chih of the Harbor Bureau at 8:30 is included.

AUTHOR: HSIAO Ch'eng-yeh [5135 2110 6777]  
TSOU Ch'i-chia [6760 0366 0857]

ORG: None

TITLE: "Enchanting Cloud, Precursory Rainbow, and Earthquake Cloud"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3,  
6 June 78 pp 32-34

ABSTRACT: Some extraordinary cloud formations believed by some Japanese lay earthquake enthusiasts to be the precursory signs of an impending earthquake are described. Specifically, the "enchanted cloud" that appeared in the sky over Tokyo before the great earthquake of 1 September, 1923 (with two pictures), the "precursory rainbow" believed by some to be an optical phenomenon resulting from an interaction between solar radiation particles and the geomagnetism, and the "earthquake cloud," a long and narrow belt which appears to divide the sky into two halves (with two pictures) are described. The opinions of the Japanese scholars about the earthquake cloud are quite different, however. The authoritative Japanese Earthquake Forecasting Coordinating Committee feels "such unscientific information can only disturb peace of mind and lead society into confusion." The proponents, on the other hand, wish that "the scientists would carry on studies with humility and an open mind."

AUTHOR: SUNG Ch'un [1345 5028]

ORG: None

TITLE: "Earth's Elasticity"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3,  
6 Jun 78 p 34

ABSTRACT: If the globe is considered to be an elastic sphere, then various moduli and constants characterizing its elasticity can be determined from its density and the propagation velocities of the longitudinal and the transverse earthquake waves. Mathematical formulas for computing the following parameters and constants are given: Compressibility, modulus of rigidity, Young's modulus, Poisson's ratio and Lamé elastic constant.

AUTHOR: None

ORG: Hydrochemical Group, Forecasting Room, Lanchou Earthquake Battalion

TITLE: "Two Errors in the Observation of Radon in Water"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3,  
6 Jun 78 pp 35-37

ABSTRACT: Changes in radon concentration of the underground water can be used as a basis for the forecasting of earthquakes. The two most important errors, the error in the measurement of radioactivity and the error of the random nature, and the practical means with which these errors may be minimized are discussed briefly with two graphs illustrating the daily variation of radon concentration and a table indicating the results obtained from two instruments. It was concluded that measurement of any physical quantity must be carried out more than once so that multiple data are obtained. On the other hand, measurements carried out simultaneously by two or three instruments can further enhance the accuracy as well as the reliability of the data.

AUTHOR: CH'EN Chin-hai [7115 6855 3189]

ORG: None

TITLE: "A Retrospection on the Study of Quake-Magnetism Relationship"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3,  
6 Jun 78 pp 38-39

ABSTRACT: How has the study of quake-magnetic phenomenon progressed historically? What are some of the experiences gained during its historical developing process that are worthwhile for us to absorb? These are the questions that concern the comrades who are engaged in the study of the quake-magnetism relationship. The history of the development of the study of quake-magnetic phenomenon since it was first reported in the 18th century was reviewed briefly. The progress from the use of an electric magnetometer to the use of a spiralling proton magnetometer that firmly established the presence of quake-magnetic phenomenon, and the various theories that have been proposed in order to be able to explain the quake-magnetic phenomenon including the "temperature effect" theory, the "piezomagnetic" theory, the "induced magnetic effect" theory, and a theory in which the changes in geomagnetism are

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 pp 38-39]

considered attributable to the electric current induced by the flow of underground water, are described.

To study the past is to find a new direction for the future. We must first strive to increase the accuracy, the reliability and the continuity of the observed materials, and secondly to find a way of eliminating the geomagnetic noises.

AUTHOR: K'ANG Che-min [1660 0772 3046]  
LIU Ch'ing-min [0491 1987 3046]

ORG: None

TITLE: "Research of the Great Earthquake of 1477"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3,  
6 Jun 78 p 40

ABSTRACT: From the study of the historical records the great earthquake that shook a huge area covering three provinces of Kansu, Shensi and Ninghsia on 13 May 1477 has been estimated to have had an intensity of 6.5 and its epicenter to be located at Yin-ch'uan in Ninghsia Province. However, from a more careful study of the historical records, especially one concerning the breakage of the head of a great reclining Buddha located in Chang-yeh County the intensity of the earthquake should more reasonably be 7 and its epicenter should have been located somewhere east of Min-ch'in and west of Yin-ch'uan.



AUTHOR: None

ORG: None

TITLE: Front cover: "Testing of 768 Single Path Radio Earthquake Telemetering Equipment" Inside front and back covers: "Great March Toward Modernization of Science and Technology" Back cover: "Old Buildings That Withstood the Ch'uanchou Earthquake"

SOURCE: Peking TI-CHEN CHAN-HSIAN [EARTHQUAKE FRONT] in Chinese No 3, 6 Jun 78

ABSTRACT: Inside front and back covers: In order to be able to gather and automatically process the data obtained from an observation of the earthquake or of the precursory signs in time with speed, continuity and reliability so as to be able to strengthen the study of earthquake science and forecasting of an impending earthquake, six telegraphic transmission earthquake station networks have been either expanded or newly built at Peking, Shanghai, Shenyang, Chengtu, Lanchou and Kunming since 1975. This is an important first step toward the modernization of our earthquake observation, analysis, and processing techniques. Today, some of the equipment of the system has already been put into operation and other equipment is either being manufactured or being earnestly designed and tested. We anticipate that the entire telegraphic

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 Inside front and back covers]

transmission earthquake station network should be completed by the end of 1980. Picture caption: (1) The comrades of the earthquake station network design group of the National Earthquake Bureau deeply immersed in a discussion concerning the general plan of the telegraphic transmission station network and its observation, analysis and processing systems. (2) The comrades of the earthquake station network design group of the National Earthquake Bureau conducting a test of the plan. (3) The comrades of the earthquake station network software attack group of the National Earthquake Bureau conducting a test and adjustment of a portion of the process on an electronic computer. (4) The personnel on duty at the control of the central receiver room of Peking telegraphic transmission earthquake station network engaged in an inspection of the signals coming from various observation stations. (5) The workers at the central receiver room of Peking telegraphic transmission earthquake station network making an adjustment of the telemetering receiver. This telemetering receiver shall be receiving and demodulating the modulated signals coming from various observation stations located at Peking, Tientsin, Changkiakow, Tangshan, etc. (6) The workers at the central equipment room of Peking telegraphic transmission earthquake station network investigating the quality of the automatic recorder. (7) The technical personnel of

[continuation of TI-CHEN CHAN-HSIAN No 3, 6 Jun 78 Inside front and back covers]

Peking telegraphic transmission earthquake station network engaged in standardization of the 768 recorder.

Back cover: (1) East tower; (2) The whole view of Chen-kuo towers (both East and West towers) of K'ai-yuan temple in Ch'uanchou, (3) West tower, (4) The Purple Cloud Great Hall -- the main architecture of the K'ai-yuan temple.

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CSO: 4009

GEOGRAPHICAL KNOWLEDGE

AUTHOR: YANG I-ch'ou [2799 6654 3985]  
YIN Tse-sheng [1438 3419 3932]

ORG: None

TITLE: "Geomorphology of the Tibetan Plateau"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 4, Apr 78 pp 1-3

ABSTRACT: This article, the first of two installments, provides generalized descriptions of the natural enchantment and the treasures of the Tibetan plateau. The plateau's formative history and subsequent geological changes are briefly discussed, and the various vast mountain systems which constitute the main geomorphological feature of the plateau, such as the Kun-lun, Karakoram-T'angku-la, Kailas--Nien-ch'ing-t'ang-ku-la, and the Himalaya mountains and differing contemporary and historical glacial activity therein are described. The mountains contain much mineral wealth, and the glaciers serve as reservoirs of precious water. Source publication contains 7 black-and-white and 3 color photographs.

AUTHOR: None

ORG: Correspondent Team, Ta-ch'ing Oil Field

TITLE: "The Thriving Ta-ch'ing Oil Field"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 4, Apr 78 pp 4-6

ABSTRACT: The article briefly traces the history of the Ta-ch'ing Oil Field from initial exploration in 1957 through discovery of black crude on 26 Sept 1959 and subsequent exploration and development of petroleum resources during the 1960s to the opening up of a new oil region in April 1973. In the 17 years of its existence the Ta-ch'ing Oil Field has returned more than 14 times its original investment. Some statistics concerning the agricultural and stock-raising activities of oil field workers and their families are given, and the socio-economic and environmental impact of the oil field is discussed.

AUTHOR: CHENG Ch'ang-su [6774 7022 5685]

ORG: None

TITLE: "Ancient Lake Su-liao and the Ta-ch'ing Oil Field"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese No 4, Apr 78 pp 6-8

ABSTRACT: The ancient Su-liao Lake was formed in the Sungari--Nen-chiang River plain during the early Cretaceous. Its evolution, its ancient fauna, and its close relationship with the petroleum of Ta-ch'ing are described in detail. The article recounts the discovery of the Ta-ch'ing Oil Field and devotes a great deal of space to describing displays in the 'Earth Palace', an exhibit hall near the Ta-ch'ing Oil Field Scientific Institute. Author also cites references to petroleum and its use in early Chinese works. After leaving Ta-ch'ing, author set out for Pai-yin-no-le some 3 hrs to the west, seeing en route some shallow lakes and 'soda lakes', vestiges of the ancient Sung-liao Lake upon whose verges the Pai-yin-no-le steppe area once rested. The topography, crops, and livestock of this agro-pastoral region are described.

AUTHOR: HSU Hsu-hua [1776 2485 5478]  
LI Yu-min [2621 4416 3046]

ORG: None

TITLE: "People of Yu-huan County Make Alluvial Deposits for Reclamation and Block Hsuan-men Strait"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese No 4, Apr 78 p 12

ABSTRACT: The article describes how a great dike 50 m tall, 144 m long, and 12 m wide was built between the Chekiang mainland and Yu-huan Island (area 186 sq km). Dike construction was begun on 1 May 1975, and it was opened to inter-city bus traffic on 1 October 1977. The dike also serves to break the strong, turbulent tidal flow (5.4 m/sec maximum) through the Hsuan-men Strait to Ch'u-men harbor, and has provided good conditions for beginning a second project to reclaim more than 20,000 acres of tideland--which will double the county's cultivated area--and to store 110 million cubic meters of fresh water to solve the island's long-standing water problem.

AUTHOR: None

ORG: Limnology Lab, Kiangsu Provincial Institute of Geography

TITLE: "Encouraging Results Attained in Limnological Research"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 4, Apr 78 p 13

ABSTRACT: The endeavors of the above organization in various aspects of limnology over the past few years are briefly enumerated. Major tasks undertaken by the organization include a comprehensive survey of typical Chinese lakes, resource utilization studies, studies of ancient and modern lacustrine deposition, utilization of a special Chinese 'MDCB pulsed electrode wavemeter' in initial automation of wave observation data processing, study of surface heat dissipation systems for hydroelectric power facilities, and environmental studies of Yang-ch'eng Lake, Lo-ma Lake, and Ko-hu Lake in Kiangsu.

AUTHOR: WANG Ching-hua [3769 2529 5478]

ORG: None

TITLE: "Water-Source Protection Study for Kuan-t'ing Reservoir"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 4, Apr 78 p 13

ABSTRACT: Kuan-t'ing Reservoir is located 100+ km northwest of Peking on the Yung-ting River and is entered by the Sang-kan River, the Yang River, and the Kui-shui River; total watershed is 47,000 sq km. In 1972, foam and an abnormal odor appeared in the reservoir, and a study was subsequently begun to determine sources, forms, and contents as well as environmental chemistry of various pollutants in the reservoir. The methodology of the study is described. Phenol accumulation was in the range of 3-5 m below water level; and arsenic content decreased as depth increased. As the result of several years' effort, the water in the reservoir has neared or reached potable quality.

AUTHOR: None

ORG: China Geographic Society

TITLE: "China Geographic Society Holds World Geography Work Conference in Shanghai"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese No 4, Apr 78 p 23

ABSTRACT: The conference, the first of its kind in 10 years, was held from 16-25 February 1978 and was attended by 62 comrades from 41 units such as institutions of higher learning, research organizations, and the journalistic and publishing sectors. The conference began with denunciations of the 'Gang of Four'. The second stage of the conference was devoted to academic exchange and discussion, and the third stage emphasized planning and the importance of cooperation in China's work in this field.

AUTHOR: YANG I-ch'ou [2799 6654 3985]  
YIN Tse-sheng [1438 3419 3932]

ORG: None

TITLE: "Geomorphology of the Tibetan Plateau II"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese No 5, May 78 pp 1-4

ABSTRACT: The second of two installments, this article provides detailed descriptions and discussion of the formation of the river systems and lakes of the Tibetan plateau, as well as the plateau's unusual karst formations, accumulations of eolian sand, and different types of periglacial phenomena.

AUTHOR: YEN Hsuan [0917 6513]

ORG: None

TITLE: "In the Shadow of the Ch'ang-pai Mountains"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 5, May 78 pp 5-7

ABSTRACT: Generalized description of the Ch'ang-pai Mountains and the Yen-pien Korean Autonomous District in eastern Kirin Province. The Ch'ang-pai Mountains constitute a region of volcanic activity; there are records of 3 eruptions over the last 300 years. The area is also one of China's important forest regions, and a nature preserve has been established there. Local flora and fauna are described, along with such crops as ginseng, mushrooms, Jew's ears, and 'monkey-head' fungus, a highly active anti-cancer agent. Paddy rice cultivation is discussed. The growth of Yen-chi Municipality since 1949 is described, with emphasis on industrial development.

AUTHOR: CH'I Hai-chih [7871 3189 0037]

ORG: None

TITLE: "Yen-t'ai--Port City of Northern Shantung Peninsula"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHICAL KNOWLEDGE] in Chinese  
No 5, May 78 pp 8-10

ABSTRACT: This article is a comprehensive description of various aspects of the city of Yen-t'ai, one of the major port cities of northern China, covering geography, early history and post-19th-century development, and the rapid growth of both light and heavy industry following the Cultural Revolution. The region is also noted for its fruits and vegetables, including the renowned Yen-t'ai apple, the cultivation of which is described. The port of Yen-t'ai also serves as one of China's modern fishery bases.

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CSO: 4009

ACTA GEOPHYSICA SINICA

AUTHOR: CHAO Yu-lin [6392 3768 2651]  
CH' IEN Fu-yeh [6929 1788 2814]

ORG: Both of the State Seismological Bureau

TITLE: "Electrical Resistivity Anomaly Observed In and Around the Epicentral Area Prior to the T'angshan Earthquake of 1976"

SOURCE: Peking TI-CH'IU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21 No 3, Jul 78 pp 181-190

TEXT OF ENGLISH ABSTRACT: Before the T'angshan earthquake, magnitude 7.8 on 28 July 1976, 9 of the 14 resistivity stations located within the region of Peking, Tientsin and T'angshan recorded gradual decreases in apparent electrical resistivity for a period of 2-3 years. The anomalous region as deduced from the records of these nine stations has a semimajor axis of about 150 km surrounding the epicenter, and yet two of the stations located very close to the epicenter recorded rapidly decreasing apparent resistivity anomaly during a period of more than two months immediately before the earthquake.

According to results of some field measurements in-situ of the apparent resistivity

[continuation of TI-CH'IU WU-LI HSUEH-PAO Vol 21 No 3, Jul 78 pp 181-190]

decrease due to compression of rock or soil layers near the earth's surface, we estimated that the linear compressional strain of shallow layers in and around the epicentral area is about  $3 \times 10^{-5}$ . Compressional strain of much the same order of magnitude has been observed by base line survey before the T'angshan earthquake.



AUTHOR: WANG Ch'un-yung [3769 2797 6978]  
CHU Ch'eng-nan [2612 2052 3948]  
LIU Yu-ch'uan [0491 3768 2938]

ORG: All of the Seismological Bureau of Yunnan Province

TITLE: "Determination of Earthquake Fault Parameter for the T'onghai Earthquake From Ground Deformation Data"

SOURCE: Peking TI-CH'IU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21 No 3, Jul 78 pp 191-198

TEXT OF ENGLISH ABSTRACT: In this paper we present a method to determine the earthquake fault parameters for the T'onghai earthquake from geodetic data in the sense of least squares. The results are as follows: strike of fault, N60°W; dip direction, S30°W; dip angle, 84°; length of the fault plane, 52 km; its width, 22 km; the fault outcrops to the surface; average strike-slip dislocation, -2.24 meters; average dip-slip dislocation, 0.14 meter; seismic moment,  $8.5 \times 10^{26}$  dyne cm; stress drop, 34 for; lower limit of the total strain energy release is  $6.5 \times 10^{22}$  ergs.

For convenience of calculations, we simplify the Mansinha and Smylie analytic expressions for the fault displacement field.

AUTHOR: NIU Chih-jen [3662 1807 0088]

ORG: Seismological Bureau of Shensi Province

TITLE: "On the Theory of Precursors of Tectonic Earthquakes--Dilatancy-Creep Model of Earthquake Source Development"

SOURCE: Peking TI-CH'IU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21 No 3, Jul 78 pp 199-212

TEXT OF ENGLISH ABSTRACT: In this paper earthquake source development of tectonic earthquakes has been discussed in more detail. Taking into consideration the effect of dynamic friction and through further analysis of the process of the earthquake source and the variations of different physical parameters, the dilatancy-creep model of earthquake source development was proposed. With this model, the process may consist of six stages: (1) elastic deformation; (2) non-elastic deformation (dilatancy); (3) precursory creep (partial fracturing on the fault plane); (4) accelerated creep (short term and imminent); (5) total dislocation (complete fracturing of the fault)--occurrence of the earthquake; (6) adjustments after the earthquake. Furthermore, two different types of precursory phenomena, namely creep fracture and collapsing fracture, as well as questions such as the variation of the velocity of non-elastic deformation (dilatancy), the basic features of various precursors, the physical basis of short term and imminent earthquake precursors

[continuation of TI-CHIU WU-LI HSUEH-PAO Vol 21 No 3, Jul 78 pp 199-212]

and others have also been discussed.

The results of this study possibly show that the dilatancy-creep model may serve as a physical and mechanical basis in discerning the nature of earthquake precursors and in making earthquake predictions.

\* LIANG Chung-yung [2733 0022 3938] took part in some of the work.

AUTHOR: WEI Kuang-hsing [7614 0342 5281]  
LIN Chih-hsiang [2651 6400 4382]  
CHU Hsuan-chiu [2612 1357 0036]  
CHAO Yu-hai [6392 3768 3189]  
CHAO Hsing-lan [6392 5281 5695]  
HOU Hai-feng [0186 3189 1496]

ORG: All of the Seismological Bureau of Shantung Province

TITLE: "On Seismic Gaps Previous to Certain Great Earthquakes Occurring in North China"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21 No 3, Jul 78 pp 213-217

TEXT OF ENGLISH ABSTRACT: In this paper the epicentral distributions of small and moderate earthquakes preceding nine great earthquakes ( $M \geq 7.0$ ) in North China have been analyzed. It can be seen that most of these earthquakes are preceded by gaps in the surrounding regions of their epicenters. The relations between the parameters of the seismic gaps, such as the lengths of their long and short axes, the areas of the gaps, etc., and the parameters of the corresponding earthquakes are discussed.

AUTHOR: HSU Wen-yao [1776 2429 5069]  
CH'I K'uei [4359 7503]  
WANG Shih-ming [3769 0099 2494]

ORG: All of the Seismological Brigade of Lanchow, State Seismological Bureau

TITLE: "On the Short Period Geomagnetic Variation Anomaly of Eastern Kansu Province"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21  
No 3, Jul 78 pp 218-224

TEXT OF ENGLISH ABSTRACT: In this paper the characteristic features of the short period geomagnetic variations observed in the eastern part of Kansu Province have been studied. It can be inferred that an east-west belt of high electrical conductivity exists underneath this region. With reference to geothermal and earthquake activity of the same region, the question of the origin of the conductivity belt was examined and a preliminary explanation made. It has also been attempted to relate the conductivity anomaly with earthquakes.

AUTHOR: WANG Tzu-k'un [3769 2737 0981]

ORG: Department of Mathematics, Nankai University

TITLE: "On the Random Exciting Process for Polar Motion"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21  
No 3, Jul 78 pp 225-233

TEXT OF ENGLISH ABSTRACT: The Chandler motion of the earth is modeled by a system of differential equations

$$d\xi = -\lambda\xi dt - \omega\eta dt + b d\phi$$

$$d\eta = \omega\xi dt - \lambda\eta dt + b d\psi$$

where  $X_t = (\xi_t, \eta_t)$  are the polar coordinates. It is shown that  $X_t$  is a 2-dimensional normal Markov stationary ergodic random process. The transition probabilistic density and covariance matrix of  $X_t$  are calculated. We find two periods of  $X_t$ , the strong correlation period  $2\pi/\omega$  and the independent period  $\pi/\omega$ ; the former is equal to Chandler period if we take  $\omega = 5.274$ , in which case  $2\pi/\omega = 1.2$  years. The best prediction formula for  $X_t$  and the prediction error are given.

AUTHOR: SHIH Chen-liang [2514 2182 2733]  
YLN Chia-ch'uan [6768 1367 0356]  
WANG Su-yun [3076 4790 0061]

ORG: All of the Institute of Geophysics, State Seismological Bureau

TITLE: "Damage to Structures and Ground Displacement Near the Faults"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21  
No 3, Jul 78 pp 234-241

TEXT OF ENGLISH ABSTRACT: In this paper the authors, after thoroughly analyzing the surface effects caused by the strong Hsing-t'ai earthquake of March, 1966, point out that at the time of the earthquake, various forms of damage to structures, such as buildings and bridges, etc., are by no means random, but have a definite predominant direction.

It is suggested that the Hsing-t'ai earthquake may have been the result of movement at the same time of faults on both sides of the Shu-lu graben. Focal mechanism solution shows that the predominant direction of damage is related to the direction of ground surface movement near the fault. This kind of study might bring about more in economical and effective ways of taking antiseismic measures (with regard to constructions).

AUTHOR: FAN Hsi-lin [5400 1585 2651]  
LI Kuo-pin [2621 0948 2430]  
CHIA Yu-chen [6328 3768 3791]  
CHOU Ch'eng-ping [0719 2052 3521]

ORG: All of the Institute of Geophysics, State Seismological Bureau

TITLE: "A MFT-PT Type Composite Multi-Channel Telemetry System"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21  
No 3, Jul 78 pp 242-247

TEXT OF ENGLISH ABSTRACT: The purpose of designing and experimenting with a MFT-PT type composite multi-channel telemetry system is to transmit and observe at the same time short period and long period seismic signals and other geophysical data for a comparatively large area (100-200 km radius).

It is a combination of the pulse amplitude modulation and frequency modulation types. The design of the system consists of some special features, such as the "waiting Type" multi-phase multivibrator, singletube monostable circuit. When this system is used together with a computer and magnetic tape recorder, it is possible to process seismic data very quickly.

[continuation of TI-CHIU WU-LI HSUEH-PAO Vol 21 No 3, Jul 78 pp 242-247]

If audio frequency is used, then by means of a telecommunication line seismic signals can be transmitted thousands of kilometers away. When radio frequency receivers and transmitters are used the system can be turned into a portable telemetered seismic network.

AUTHOR: TS'AO Ch'ang-ch'i [2580 2490 4388]

ORG: Department of Physics, Peking University

TITLE: "The Apparent Resistivity for Layered Earth"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21 No 3, Jul 78 pp 248-261

TEXT OF ENGLISH ABSTRACT: A modified definition of apparent resistivity for layered earth is proposed. In the far zone, the curves of such apparent resistivity appear to have the following characteristics: the superfluous extremes are more or less suppressed, the fluctuation amplitude of the curves becomes larger than usual, and the apparent resistivity gives closer values to the true resistivities of the individual layers. All these features help to improve the interpretation of the resistivity curves.

AUTHOR: WU Ju-shan [0702 1172 1472]  
HSU Shao-hui [1776 7300 6540]

ORG: None

TITLE: "A Fast Algorithm for Near Region in Holographic Reconstruction"

SOURCE: Peking TI-CHIU WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese Vol 21  
No 3, Jul 78 pp 262-267

TEXT OF ENGLISH ABSTRACT: A fast algorithm based on fast convolution for near region numerical reconstruction of holography is presented, and is compared with the angular spectrum method. This method is a precise, fast computational procedure, giving identical results as that by the method, although it is slower than the angular spectrum method. In addition, it can also be applied to the case in which the image plane is greater than the hologram plane by using block-by-block fast convolution.

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C50: 4009

SCIENTIA GEOLOGICA SINICA

AUTHOR: TAI Yung-ting [2071 3057 1353]  
LI Chu-ying [2621 5468 5391]  
CHIANG Hsieh-kuang [5592 0588 0342]  
CHAO Sheng-ts'ai [6392 3932 2088]  
HOU K'uei [0186 1145]  
HUANG Hua-liang [7806 5478 2856]  
HSIAO Ch'i-yu [5135 6386 0056]

ORG: TAI, LI, CHIANG, CHAO and HOU all of the Institute of Geology, Chinese Academy of Sciences; HUANG and HSIAO both of the Research Institute of Geological Exploration and Development, Szechwan Petroleum Administration

TITLE: "Petrography of Carbonate Rocks From the Permian Mao-k'ou Formation and Their Reservoir Properties in Southern Szechwan Basin"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78 pp 203-219

TEXT OF ENGLISH ABSTRACT: Based upon detailed research on the bioclastic limestones of Mao-k'ou formation in southern Szechwan basin, a scheme of classification is proposed. Their stages of diagenetic changes were also analyzed. The character of

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 203-219]

reservoir voids in the bioclastic limestones is roughly discussed, which emphasizes the effect of various lithologic factors on the reservoir property. Finally, the reservoir regularity of gas in this limestone is stated as follows:

- (1) Intercrystal pore of sparry calcite and dolomite behaved as the main reservoir space. The cavern of the karst system and adjacent pore may be regarded as enriched space, maintaining the stability of production. It was realized that fracture fissures were the main background of high gas production.
- (2) The sparitic red algal limestone and dolomitic echinodermatic limestone play an important role in reservoir capacity, while the micritic shelly green algal limestone and shelly marlite are the main resource rocks. Obviously, the organism, especially the algae, is the chief factor in the formation of oil-gas reservoir.
- (3) Red algal bank occurring in uplifted platform margin is the main reservoir facies, which appear to be more promising in the reservoir behavior, especially those occurring near the margin of open sea. The semi-closed lagoon within subsidence basin is found to be the main resource facies with favorable lithological character on the side of green algal bank. Hence, the transitional belt between the uplifted platform and the subsidence basin is considered as the most available facies zone for gas exploration.
- (4) In general, the recrystallization, karst development and dolomitization can improve the reservoir capacity of strata, while the existence of muddy constituents may reduce the reservoir capability. During the period after the sedimentation of

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 203-219]

Mao-k'ou formation and before the sedimentation of Le-p'ing formation, there occurred an epeirogenetic uplift, accompanying the development of paleokarst.

(5) Bioclastic limestone of Mao-k'ou formation is overlain by Le-p'ing coal series, the oil (gas) originating in the lower part and reserved in its upper part. Thus a self-generating and self-reserving gas-containing formation with a large reservoir and production capacity was formed.

AUTHOR: YUAN Pao-yin [5913 1405 0603]

ORG: None

TITLE: "Sedimentary Environment and Stratigraphical Subdivision of Sjara Osso-Gol Formation"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78 pp 220-234

TEXT OF ENGLISH ABSTRACT: Specimens from the Quaternary of the Ta-kou-wan area along the Sjara Osso-Gol river have been analyzed for spore-pollen content, water soluble salt and granulometric composition. Based upon the laboratory data and the studies of fauna and palaeoliths found in this region, this paper proposes to divide the past Sjara Osso-Gol formation into three parts.

1. The Lower Sjara Osso-Gol formation consisting mainly of lacustrine deposits formed under mild climatic conditions, middle Late Pleistocene in age.
2. The Upper Sjara Osso-Gol formation comprised mainly of alluvial deposits accumulated under dry-cold climatic conditions, upper Late Pleistocene in age.
3. The Ta-kou-wan formation made up mainly of lake-swamp deposits laid down in warm humid climatic environment, Early Holocene in age.

Judging from the age of these units, the lower and upper Sjara Osso-Gol may be considered as being synchronous with the Malan loess but they are of different facies.



AUTHOR: HSU Chieh [1776 2638]  
LI Hsiang-ken [2621 4382 2704]  
KUO Shun-min [5716 7311 3046]

ORG: None

TITLE: "A Preliminary Study of Neotectonic Movement Along the An-ning-ho Faulting Belt"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78 pp 235-246

TEXT OF ENGLISH ABSTRACT: The An-ning-ho faulting belt is accepted as a large-scale deep faulting belt with a long history of development running in the southwestern part of China. The neotectonic characteristics of the faulting belt are that "they are divided into strips longitudinally, and the strips are cut into blocks further." The nature of tectonic activities of this belt can be proved not only by its left-lateral compressive shearing movement, which may roughly correspond to the Szechuan movement (at the end of Cretaceous), but also by the intermittently northwards body upwarping and complex differential block movement. During its development in the different periods of geological history, the intensity of neotectonic movements had been decline northward and the width of such neotectonic belts narrowed successively.

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 235-246]

Since the end of Early Pleistocene the intensive active belt concerned falls mainly along the eastern bank of the river An-ning-ho, between Mien-ning county and Huang-lien-kuan. Tectonically and geomorphologically this belt is characterized by the strong compressive deformation of younger beds (as Hsi-ko-ta bed  $N_2-Q_1$ , Huang-lien-kuan conglomerate bed  $Q_2$ ), by the development of a system of graben and horst in transversal direction, and the longitudinal distribution of block uplift and depression in alternation. Therefore, this faulting belt is referred to as "the youngest belt of neotectonic movement" according to its tectonic and geomorphological features and the relationship to the seismic activity. The belt under investigation is regarded as a strong earthquake generating belt.

\* Also taking part were WEI Chi-yu [7614 4949 0151], SHAO Hung-shun [6730 1347 5293], WANG Liang-mou [3769 5328 6180], K'ANG Lai-hsun [1660 0171 6598] and WU K'ai-keng [0702 7030 5105].

AUTHOR: CH'ENG Kuo-liang [4453 0948 5328]  
LIN Chin-lu [2651 6855 6922]  
LI Su-ling [2621 4790 3781]  
LIANG Ch'i-p'ing [2733 0366 1627]

ORG: None

TITLE: "A Preliminary Paleomagnetic Survey of the Ni-ho-wan Bed"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78  
pp 247-252

TEXT OF ENGLISH ABSTRACT: Paleomagnetic method is used to date the Ni-ho-wan bed, a type for Early Pleistocene in North China. According to the magnetic polarity zones the ages of three sections (Hung-ya, Hsiao-tu-k'ou and Hu-t'ou-liang) have been evaluated as follows. Hung-ya section, disconformable with the underlying beds (the Hipparion red clay), may have been laid down between 2.60-1.60 m.y.; the exposed bottom layer at Hsiao-tu-k'ou section may have been formed about 3.00 m.y. ago, the lower part at Hu-t'ou-liang section may be compared with the lower part at Hsiao-tu-k'ou, belonging to the Gauss Normal Epoch ending 2.43 m.y. ago. Remembering that the basal Yuan-mou Formation was formed approximately 3.12 m.y. ago, one should point out that all the above type sections of Early Pleistocene are older than 3.00 m.y., and that is worthy of notice to both geologists and paleoanthropologists.

AUTHOR: CHENG Hsueh-cheng [6774 1331 2973]  
TS'UNG Po-lin [1783 2672 2651]  
CHANG Wen-hua [1728 7186 5478]  
YEN Cheng [0917 2973]

ORG: None

TITLE: "Discussion on the Petrochemistry of Cenozoic Basaltic Rocks in Eastern China"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78  
pp 253-264

TEXT OF ENGLISH ABSTRACT: In this paper 65 new chemical analyses and 6 K-Ar age-data of basalts from eastern China are presented. In eastern China there are two types of Tertiary basalts. The first is referred to by the writers as a new type of basalt and named "transitional tholeiitic basalt," occurring mainly under the North China Plain, while the other is alkalic basalt (and minor amounts of tholeiitic basalt) found near the deep faults.

The former is characterized predominantly by the Ca- and Al-poor, higher Mg/Ca value, slightly high alkali and slight undersaturation or saturation in silica: these characters are also reflected more or less in alkali basalts of this region. It is thus clear that the two types of basalts have generated under similar conditions

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 253-264]

from primary basaltic magma. According to the petrochemical study of basalts and xenoliths in basalts from this region it is suggested that the transitional tholeiitic basalts may be formed by partial melting at a depth of about 35 to 50 km, i.e., between the basal part of the stable plagioclase-hercynite zone and the upper part of spinel-hercynite zone in the upper mantle, whereas the alkali basalts may have been formed at a depth of about 50-60 km within the stable spinel-hercynite zone of the upper mantle. From its petrochemical features, i.e., Ca- and Al-poor and Mg/Ca value high, the two types of basalts seem to be erupted rapidly from the source region of primary basalts due to the weak assimilation and differentiation at low pressure. Clearly, the spatial distribution and the chemical composition of basalts are controlled by plate tectonics.

Based on the model of plate tectonics, the pattern of material convection within the earth may be assumed as follows: the convection current of mantle material turns upwards, while the crust material enters the mantle and subduces along the Benioff zone. Thus the main pattern of movement of the earth's material is that the high density material moves upwards and the light density one moves downwards, which distinctly contradicts the law of gravitation and physico-chemistry. In fact, such an unusual movement of the earth's material is present merely locally and on a small scale. According to the pattern of plate tectonics the rotation of earth and its material equilibrium could be upset. But the distribution of basalts in the

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 253-264]

continent is chiefly controlled by faults, which cause either expansion giving rise to the abrupt reduction in pressure or compression inducing the increase in temperature. In the latter case faults will cause a partial melting of the upper mantle substance, resulting in the generation of primary basaltic magma with various compositions.

AUTHOR: SUN Yen [1327 1484]

ORG: The Research Group of Geomechanics, Department of Geology, Nanking University

TITLE: "On the Transformation of Mechanical Nature of Compressive Fracture Plane"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78  
pp 265-274

TEXT OF ENGLISH ABSTRACT: Starting from the geomechanical viewpoint, an analysis is made of the structural examples investigated in Kiangsi, Anhwei and Szechwan. According to changes of both regional and local structural stress fields induced by mechanism of folding and specific terrain condition, as well as the behavior of mechanical property of rocks, the transformation of mechanical nature of compressive fracture plane is illustrated. "Transformation" in this case means a conversion of compressive nature into tensile one.

Summing up the cause of transformation of compressive plane discussed above and basing it on theoretical studies, we have stressed the importance of changes of regional structural stress field caused by relevant tectonic system. The experiments of photo-elasticity concerned are also described.

From the transformation of the mechanical nature of compressive fracture plane one

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 265-274]

can trace the action of stress within the structural plane and the source of tectonic forces, and from it one can recognize the mechanical nature of structural planes as well as the type of tectonic system.

AUTHOR: WANG K'o-lu [3769 0344 7627]  
KAO Chen-huan [7559 2182 1403]  
HSU Chia-mo [1776 0857 6206]  
CH' IEN Jui-hua [6929 3843 5478]

ORG: None

TITLE: "The Geology of Earthquake Disaster Caused by Lung-ling Earthquake"

SOURCE: Peking TI-CHIH K'O-HSUEH [SCIENTIA GEOLOGICA SINICA] in Chinese No 3, Jul 78  
pp 275-282

TEXT OF ENGLISH ABSTRACT: On 29 May 1976 (at Peking time 2023 and 2000), two strong earthquakes of magnitudes 7.5 and 7.6 respectively occurred in Lung-ling of Yunnan province, with intensity IX in the epicentral area. The eastern part of Lung-ling district was severely damaged, causing rock falls, land collapse, landslides, debris flows and ground fissures on a large scale. Investigations of earthquake disaster and intensity in the earthquake region show that several points with higher intensity occurred mostly in a Quaternary subsidence basin. Here the iso-intensity line agrees very well with the shape of the basin, reflecting the apparent influence of regional geological and geomorphological background. In general, buildings collapsed more in the Quaternary basin than in the mountainous areas with bedrock.

[continuation of TI-CHIH K'O-HSUEH No 3, Jul 78 pp 275-282]

And, for the intermontane basins, the degree of collapsing houses in wood framework increases with the decreasing compaction of the ground and increasing thickness of strata.

The damage caused by earthquakes seems to be more severe in convex narrow strips of land and steeper slopes than in concave open and low-lying relief.

8650  
CSO: 4009

SCIENTIFIC EXPERIMENT

AUTHOR: CH'EN SHEN-ch'ing [7115 1957 0615]

ORG: Institute of Semi-conductors, Chinese Academy of Sciences

TITLE: "Large Scale Integrated Circuit"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 1-2, back cover

ABSTRACT: An integrated circuit is the technique of placing such components as transistors, diodes, resistors, and capacitors on a single semi-conductor plate, generally a silicon wafer. A special structure is used to isolate their electrical property before linking them together to form a miniature structure of a complete circuit. A small scale integrated circuit has less than 100 components on a chip, a medium one has 100-1000, a large scale one has 1000-10,000, and an ultra-large one has more than several tens of thousands. All the circuit of an electronic computer, which weighed 30 tons when vacuum tubes were used can now be sealed in a box smaller than a match box. This paper describes large scale integrated circuit in general terms and its possible application in the years 1985 and 2000. A photo of China's first large scale integrated circuit automatic plate making machine serves as the back cover of this issue of the journal.

AUTHOR: YU Yuan-huan [6735 0337 2719]

ORG: Institute of Semi-conductors, Chinese Academy of Sciences

TITLE: "Epitaxial Growth of Semi-conductors"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 3-5

ABSTRACT: The history of development of semi-conductors is reviewed. In order to overcome the shortcoming of the diffusion technique of forming P-n junctions, the new technique of epitaxial growth of semi-conductors was created around 1960. It may be said that the development of the epitaxial growth technique was largely responsible for the realization of integrated circuitry in the 1960's. Various direct and indirect methods of this technique are briefly described.

AUTHOR: CH'EN T'ing-chieh [7115 1694 2638]

ORG: None

TITLE: "Glass Capable of Recording Events--Glass Semi-Conductors"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 5-6

ABSTRACT: Inspired by the nervous systems of organic bodies, scientists discovered the special electrical properties of certain glass systems that are in a noncrystalline state, entirely different in structure from silicon monolithic semi-conductors. These glass semi-conductors include mainly the arsenic-sulfur, tellurium-arsenic-germanium, selenium-arsenic-germanium systems. The switching and memory properties of these systems are discussed. When the glass semi-conductor is used as the photographic film with laser as the light source, we have holographic photography (K'O-HSUEH SHIH-YEN No 11, 1973.) In recent years, scientists of the various countries of the world have been studying the use of this material to make thin-film photoelectric solar batteries to provide inexpensive electrical power for homes and industries in the not too distant future.

AUTHOR: YU Ping [1429 0365]

ORG: None

TITLE: "Automated Mail Management in Post Offices"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 7-9

ABSTRACT: In the past few years, such advanced techniques as electronic computers, photoelectric recognition, program control, facsimile transmission, fluid pressure, etc. have begun to be applied in the post offices in China. A group of automated machines have been made to sort the mails, to distribute newspapers, to move, load, and unload parcels, and for internal business management and service. Automatic letter sorting is a very complex process; the basic knowledge of it will be the subject matter in a separate paper in the future. This paper describes the mechanization and automation of post office management, automatic classification of parcels, etc.

AUTHOR: HAI Wen-hsueh [3189 2429 1331]

ORG: Institute of Digital Communication Technology, Department of Post and Telegraphy

TITLE: "Digital Data Communication (II)"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 9-11

ABSTRACT: In the first part of the paper previously published the author defined the meaning of digital data communication and its application in the national economy, national defense, and the various sciences and technologies. In this the second part of the paper the author describes the three components of the digital data communication system, namely the terminal equipment, the transmission system, and the computer system. The terminal equipment may be a punched card or tape system, a typewriter, a light pen, a telephone, etc. and it may be for both input and output purposes. The functions and the mutual relationship of the three component parts are described.

AUTHOR: None

ORG: Scientific Research Institute, Twelfth Engineering Bureau, Ministry of Hydroelectricity

TITLE: "Drill Hole Photography and Drill Hole Television"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 12-13

ABSTRACT: Drill photography is the technique of placing a camera in the drill bit to take pictures of the rock walls at predetermined depths. Drill hole television is a type of cable television. The camera changes the image into electrical signals which are transmitted by the cable in the drill to a ground surface receiver. Structures of a drill hole photographic camera and a drill hole television camera are described with drawings.



AUTHOR: T'U Yen [1458 3596]  
HSIAO Feng [5135 1496]

ORG: None

TITLE: "Sonic Target"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 14-15

ABSTRACT: At the target practice range of a certain scientific research institute the authors recently visited there was no one in charge of announcing the accuracy of the aims. Instead, there is a scintillating display screen near the gunner to report the location of the hit on the target and at the same time a nearby special computer is typing out the data on a piece of paper. This is a system recently made by the institute, using the sound location theory to determine automatically the point where the bullet hit the target. This is called a sonic target. The theory and the structure of the sonic target are described.

AUTHOR: HU Yu-lun [5170 0147 0243]

ORG: Remote Measurement Research Group, Laboratory of Electronic Instruments for Medical Uses, First Hospital, Hupei College of Medicine

TITLE: "Remote EKG Examination Using the Telephone System"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 16-17, 28

ABSTRACT: Electrocardiogram, one of the important means of diagnosis for heart diseases, can be transmitted remotely either through radio or through the telephone system. The paper, "Electrocardiograms Coming From Chu-mu-lang-ma Mountain" appeared previously in this journal, introduced the radio transmission technique. Long distance radio transmission involves problems of power amplification, station management, etc. There are no such problems if the telephone system is used. It is necessary to proceed with amplitude modulation and frequency modulation before the EKG signals can be transmitted through the telephone wire, however. The theories and the instrument designs are described.

AUTHOR: LIU Li [0491 4539]

ORG: None

TITLE: "The Transportation Tool Within the Body--Blood"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 18-19

ABSTRACT: An injection of antibiotics is often administered muscularly in the buttock no matter where the inflammation is located. The blood of the body will transport the drug to the location to produce the effect. The blood is the tool of transportation in the body to deliver nutrients, oxygen, hormones, wastes, etc. to the various parts of the body. The functions, the composition, and the importance of blood are described.

AUTHOR: None

ORG: None

TITLE: "Victories on the Battle Front of Science and Technology"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6, Jun 78 pp 22-23

ABSTRACT: Eight short items are included in the paper: (1) Black diamond polycrystalline is a new synthetic diamond, more abrasion and heat resistant than the ordinary yellow diamond polycrystalline. A drill bit made of this new material has been used in a dolomite stratum with satisfactory results. (2) Argon ion laser: It has been successfully made by the Institute of Electronics Chinese Academy of Sciences with the help of Peking Second Optical Instrument Plant. (3) Three-ton Scale: This, currently the largest high precision scale, was made in 1975 by Shenyang Scale Instrument Plant. (4) CDXF-II Color/Black and White Television Signal Generator: It has been made by Chekiang Radio Plant. (5) Polyether water solution quenching medium: With the help of Nanking Aviation College, the Nanking Switch Plant made quenching experiments with this medium on molds and found it to be very satisfactory. (6) Fast charge for lead batteries: Workers of Shanghai Harbor Passenger and Freight Station created a technique for recharging lead batteries in 120 minutes. (7) Supersonic wave lead plating machine. It is made by Shanghai Supersonic Wave Instrument Plant. It can be used for aluminum, iron, nickel, and zinc plating as well.

AUTHOR: CH'EN Ch'i-mei [7115 0796 5019]

ORG: None

TITLE: "Plasma Digital Clock"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 24-26

ABSTRACT: Ordinary clocks are difficult to read at a distance and due to their structure, it is difficult to synchronize all the clocks in public establishments of a city. The appearance of plasma digital clocks resolved these problems. A semi-conductor radio receiver may be attached to the digital clock so that the Central People's Broadcasting Station can correct the time of all the clocks with its time-correcting signals. Aside from being a time piece, the digital clock may also be used to turn on or off electrical appliances, to ring bells, to control the water level of a boiler, etc. The structure and theory of plasma digital clocks are explained.

AUTHOR: SU I [5685 1355]

ORG: None

TITLE: "The Earth's Rotation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 6,  
Jun 78 pp 26-28

ABSTRACT: As the earth's equatorial radius is more than 6300 km, due to the earth's rotation, a point on the equator travels more than 39500 km in 24 hours. This is a speed faster than that of a supersonic airplane, but people on the earth cannot feel this movement. This paper describes the various techniques with which to prove that the earth is indeed constantly rotating on its own axis.

6168

CSO: 4009

ACTA METALLURGICA SINICA

AUTHOR: HO Hsin-lai [6320 0207 5490]  
CH'U Yu-i [5969 1635 5030]  
CHANG Hsiu-lin [1728 4423 2651]  
YU Tsung-sen [0151 1350 2773]  
LI Ch'iu-p'ing [2621 4428 5493]  
YIN Hsi-kuang [1438 3356 0342]

ORG: All of Peking College of Iron and Steel

TITLE: "Distribution of Boron in Steel"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13  
No 4, Dec 77 pp 235-245

TEXT OF ENGLISH ABSTRACT: The distribution of boron and its effect on the hardenability of a 25MnTiBR steel have been investigated by means of modified particle-tracking autoradiography. The results indicate that boron exists in the forms of equilibrium and non-equilibrium segregation along grain boundaries. The equilibrium segregation of boron disappeared during high temperature austenization. The non-equilibrium segregation along grain boundaries of a quenched boron steel occurred during cooling by diffusion from their neighboring regions. The degree of

[continuation of CHIN-SHU HSUEH-PAO Vol 13 No 4, Dec 77 pp 235-245]

segregation increased and a boron depleted zone appeared next to the boundaries as the austenizing temperature was raised.

The effect of rare earth additives on the distribution of boron in 25MnTiBR steel has also been investigated. It was found that within a certain temperature range the segregation of boron to austenite grain boundaries was hindered by the addition of 0.4% mischmetal. This was possibly caused by an equilibrium segregation of rare earth elements along the austenite grain boundaries. It has been confirmed that the simultaneous addition of boron and rare earth mischmetal further increases the hardenability of the steel. Suggestions have been made relating to the possible mechanism of this effect.

AUTHOR: TS'AI Ch'i-kung [5591 0366 7255]

ORG: Peking Institute of Iron and Steel Research

TITLE: "Analysis on Crack in High Strain Zone"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 246-262

TEXT OF ENGLISH ABSTRACT: Using dimensional analysis of mechanical equation and solution, simple functional forms of J-integral and COD in terms of nominal strain (or nominal strain energy density) and crack length for incompressible, pure power hardening material have been derived. The validity of relation  $J = 2\pi a \int \sigma d\epsilon$

with a fully plastic zone has been discussed based on the extrapolation of numerical finite element results. Approximate relations between COD and nominal strain for wide plate with deep surface crack under elastic-plastic conditions are given, and it is pointed out that because of local ligament yielding, Burdekin relation

$\frac{\delta}{2\pi a \epsilon_Y} = \frac{\epsilon}{\epsilon_Y} - 0.25$  is not applicable in wholly plastic wide plate with deep surface crack.

AUTHOR: LO Chi-hsun [7482 4949 0534]  
YIN Yao-te [6892 5069 1795]  
LIN Sheng-k'un [2651 3932 2492]  
CHAO Ch'i [6392 7871]  
WANG Chien [3769 0313]

ORG: None

TITLE: "Effect of Rare Earth Additives on the Quality of Iron-Chromium-Aluminum Electric Heating Alloys"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 263-272

TEXT OF ENGLISH ABSTRACT: To ascertain the effect of rare earth additives on the quality of Fe-Cr-Al electric heating alloys, the rapid heating life test and oxidation kinetics study of three specimens: (A)-plain alloy, (B)-added 0.038% La-Ce mixture, and (C)-added 0.49% Y, have been examined. The observations of morphology and adhesivity of the oxidized layer reveal that in the interior of specimen C after being exposed for 350 hours under 1200°C, a new phase, which has been identified as yttrium-aluminum-garnet ( $Y_3Al_5O_{12}$ ), was present. This might have a direct influence upon the adhesivity of the surface oxidized layer.

[continuation of CHIN-SHU HSUEH-PAO Vol 13 No 4, Dec 77 pp 263-272]

In the case of the plain alloy, exposure at high temperatures gave rise to grain growth with rapid deterioration in the mechanical properties of the specimen. The addition of rare earth, especially yttrium, was found to be effective in preventing crystal growth and therefore exerted correspondingly good influence upon the mechanical properties of the specimen at high temperatures. Such may be the reason why the rapid heating life of alloys with the addition of rare earth is longer than without.

AUTHOR: LIU Shu-i [0491 0647 0308]

ORG: University of Science and Technology of China

TITLE: "Thermodynamics of Irreversible Processes for Elastoplastic Metal Dislocation System and Stress-Activated Motion of Dislocations"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 273-281

TEXT OF ENGLISH ABSTRACT: Thermodynamic functions of metal dislocation system are defined in physico-chemical space of states by taking  $P = \frac{1}{3} \sigma_{kk}$  in connection with plastic incompressibility. Irreversible shear deformation of this system is treated by thermodynamic laws of irreversible processes.

In a way equivalent to the introduction of entropy production from the classical second law for irreversible processes, the free energy change  $\Delta Z_{T,P}$  is expressed in terms of dissipations  $\Delta'$  and  $\Delta_Z$ ,  $\Delta Z_{T,P} = -A'_{iR} - \Delta_Z$  when distortion work  $A'_{iR}$  is done by the system, and  $\Delta Z_{T,P} = A'_{iR} - \Delta'$ , when work is done to the system by applied deviational stress field,  $S_{jk}$ .

In a way parallel to the derivation of Nernst equation for reversible cells, the above  $\Delta Z_{T,P}$  expressions, together with reaction isotherm,

[continuation of CHIN-SHU HSUEH-PAO Vol 13 No 4, Dec 77 pp 273-281]

$\Delta Z_{T.p} = \Delta Z_0^{\ddagger} + kT \ln \left( \frac{\gamma^{\ddagger} x^{\ddagger}}{\gamma x} \right)$ , give the concentration  $x^{\ddagger}$  of activated dislocations, and simple kinetic arguments lead to the rate of movement  $v$ , of dislocations under applied deviational stress field  $S_{jk}$ :

$$v = 2b \left( \frac{\gamma}{\gamma^{\ddagger}} \right) v_0 e^{-\frac{(\Delta Z_0^{\ddagger} + A^*)}{kT}} \sinh \frac{1}{kT} \int \int \int \left[ \int_{e_{mn}}^{e_{mn} + \Delta e_{mn}^{\ddagger}} S_{jk} de_{jk} \right]_{,B} dx_1 dx_2 dx_3$$

wherein  $\Delta'$  and  $\Delta_z$  are taken to be equal for the case of symmetrical barrier,  $\Delta' = \Delta_z = \Delta^{\ddagger}$  which is the monotonous internal friction of irreversible stress activation;  $\Delta e_{mn}^{\ddagger}$  is the deviational increment of activation, and  $v_0$ , the volume of each dislocation.

Other results are given in the Chinese text.

AUTHOR: None

ORG: Research Group of Solvent Extraction, Changsha Institute of Mining and Metallurgy Research

TITLE: "The Substituted Amide-Type A-101 Extractant and Its Applications"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 282-288

TEXT OF ENGLISH ABSTRACT: Under the guidance of the principle of independence and self-reliance, the substituted amide-type A-101 extractant has been successfully synthesized. This type extractant showed easy synthesis, better physico-chemical properties and higher selectivity. Dialkylacetamide is one of weakly basic extractants with carbonyl as the functional group. Examples are given in which A-101 type extractant has been used to extract and separate rare metals from ore concentrates, e.g. niobium-tantalum separation, thallium extraction, molybdenum-rhenium separation, gallium extraction, etc., and in every case satisfactory results on an industrial scale have been obtained.

\* Written by MA Jung-chun [7456 2837 7486] and CHOU T'ai-li [0719 1132 4539].

AUTHOR: TS'AI Ch'i-kung [5591 0366 7255]  
CHU Ching [2612 7234]  
HO Ch'ung-chih [0149 1504 2535]  
SHEN Hui-wang [3947 6540 2489]  
LO Li-keng [5012 0500 2577]  
SUNG Wei-shun [1345 3634 7311]  
YU Wei-le [0060 4850 2867]

ORG: All of the Peking Institute of Iron and Steel Research

TITLE: "An Investigation of a Maraging Steel with Lower Nickel and Cobalt Contents"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13  
No 4, Dec 77 pp 289-300

TEXT OF ENGLISH ABSTRACT: It is shown that Cr and Mn bearing 12Ni maraging steels with lower Ni and Co contents are of high strength and toughness. Precipitates after aging, dislocation configurations and easy cross-slip behavior of dislocations have been examined. The results are discussed on the assumption that the hexagonal close-packed phases were precipitated along the stacking fault zone of the dislocation lines. In order to predict the stability and solubility of high-temperature austenite in maraging steels, a criterion has been suggested from the point of view of average electron concentration per atom of the alloy. The criterion is helpful for rational alloying of maraging steels with lower Ni and Co contents.

AUTHOR: P'AN Hao [3382 3493]

ORG: None

TITLE: "The Stress Intensity Factors of a Single-Edge Cracked Bar Loaded by In-Plane Transverse Forces"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13  
No 4, Dec 77 pp 301-307

TEXT OF ENGLISH ABSTRACT: The stress intensity factors of a single-edge cracked bar loaded by in-plane transverse forces are calculated with the application of the principle of super position and St. Venant's principle. Simple formulae for  $K_I$  and  $K_{II}$  are derived and the appropriate conditions under which these formulae are applicable have been discussed.



AUTHOR: LO Kan [5012 1626]

ORG: None

TITLE: "Metallurgical and Technological Features of Rare Earth-Magnesium Nodular Cast Iron and Its Applications in China"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 320-330

TEXT OF ENGLISH ABSTRACT: A description is given of the metallurgical and technological features of a high quality nodular cast iron using rare earth-magnesium master alloy as its composited graphite spheroidizer. Special attention is given on the mechanical properties of three varieties of this new material. Owing to its certain distinguishing properties, this nodular cast iron has found widespread application in China.

8650

CSO: 4009

AUTHOR: LI Po-tsang [2621 0130 5258]

ORG: Peking Institute of Metallurgy

TITLE: "The General Treatment of Diffraction Geometry of Amplitude-Modulated Structure"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 pp 308-315

ABSTRACT: The technique described in the paper proceeds directly from amplitude modulation of the diffraction source in the place of amplitude modulation of the atomic diffraction factor, to obtain a diffraction source function of the amplitude-modulated structure, expressed in a general differential equation. The Fourier transform of the function gradient was derived, as well as Fourier transforms that are more suitable for cyclic functions. Finally, based upon the general approach of kinetic approximation diffraction theory, an integrated mathematical treatment was performed to give clarification to the physical meaning of the diffraction geometry of amplitude-modulated structure.

This paper was received for publication on 16 July 1977.

AUTHOR: None

ORG: Precision Cutting Group, Ch'ang-ch'eng Industrial Company

TITLE: "A Supersonic Flame Cutting Torch"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese  
Vol 13 No 4, Dec 77 pp 316-319

ABSTRACT: On the basis of continuous improvements over the old flame cutting torches, and through theoretical computations, the authors designed and made a flame cutting tool, using a supersonic nozzle. Attached to various cutting machines, this nozzle has been applied satisfactorily by departments of shipbuilding, petroleum chemistry, and machine manufacturing. With this nozzle, the cutting surface may reach a smoothness of  $\nabla 4$ , with a heat-affected region as small as 0.85 mm and without either macro or micro fissures. This paper was received for publication on 1 July 1977.

AUTHOR: (1) LIU Shu-i [0491 0647 0308]  
(2) TS'AI Ch'i-kung [5591 0366 7255]

ORG: LIU of China University of Science and Technology; TS'AI of Peking Academy of Steel and Iron

TITLE: "Comments on 'On the Relation Between the J-Integral and the Crack Tip Opening Displacement' (Continued)"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese  
Vol 13 No 4, Dec 77 pp 331-334

ABSTRACT: The article, 'On the Relation Between the J-integral and the Crack Tip Opening Displacement' in ACTA METALLURGICA SINICA Vol 11 No 2, 1975 p 174 and the viewpoints therein, is the subject of discussion by the authors in separate sections of the paper. Various problems and viewpoints concerning the subject matter are proposed and evaluated in each section. This paper does not give either the name of the author of the original article or an answer by him to the comments.

AUTHOR: LIU Po-ch'ang [0491 0130 2490]

ORG: Shanghai College of Mechanical Engineering

TITLE: "Comments on 'Improving the Magnetic Property of the Iron-aluminum Alloy Fe-16%Al'"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 p 335

ABSTRACT: The original article, 'Improving the Magnetic Property of the Iron-aluminum Alloy Fe-16%Al' was published in ACTA METALLURGICA SINICA Vol 12 No 2, 1976 p 193. This paper carries two viewpoints of the author which are in disagreement with the original article. There is also a brief answer by the original author [whose name is not given.]

AUTHOR: None

ORG: None

TITLE: "Symposium on Fracture of the Chinese Society of Metals was Held on 10-17 December 1977 in Tientsin"

SOURCE: Shenyang CHIN-SHU HSUEH-PAO [ACTA METALLURGICA SINICA] in Chinese Vol 13 No 4, Dec 77 p 336

ABSTRACT: As one of the meetings called by the National Conference of Science and Technology, which was under the auspices of the five learned societies of Geography, Zoology, Forestry, Aviation, and Metals, the Symposium on Fracture was held to become the largest conference on multiple sciences in more than a decade. A total of 80 delegates, representing research institutions, colleges, and industries of metallurgy, departments of machine industry, petroleum chemistry, railways, and hydroelectricity, and the Institute of Mechanics of Chinese Academy of Sciences. Aside from the 20 papers on various aspects of fracture, a report summarizing the discussions was delivered by CHANG Wen-ch'i [1728 2429 1142], Deputy Secretary of the Chinese Society of Metals. P'EI Li-sheng [5952 7787 3932], the comrade in charge of the National Conference of Science and Technology, and YU Kuang-yuan [0060 0342 6678], Vice Chairman of the state's Science and Technology Committee delivered the closing speeches.

6168

CSO: 4009

CHINESE JOURNAL OF SURGERY

AUTHOR: None

ORG: Burn Unit, General Hospital of the Chinese People's Liberation Army;  
Burn Teaching and Research Group, 162nd Hospital, Chinese People's Liberation Army

TITLE: "A Preliminary Report on Pig Skin Heterografts in Burns"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 69-71

ABSTRACT: Pig skin heterografts were used in 29 cases of burns from March 1971 to June 1974. The patients were suffering from second and third degree burns covering 15 to 92 percent of their body surfaces. Grafts were applied 3 to 7 days after the burns were sustained. The process whereby the pig skin is prepared is described in detail. In about 5 to 7 days, presence of capillaries was observed in the grafted skin. Shedding of the grafts began in 8 to 17 days (average of 12 days), with complete shedding having occurred in 13 to 28 days (average of 21 days). After shedding, fresh granulation was seen in most cases and autografts were performed after 2 days with successful grafts being achieved in 80-95 percent of cases. Healing occurred in 21 to 27 days after covering with pig skin in second degree burns. Fevers of 39 to 40° C occurred in some cases. A discussion of findings is presented.

AUTHOR: None

ORG: Burn Prevention and Treatment Research Coordinating Group, Wuhan Unit; First Hospital, Second Military Medical University; First Hospital, Third Military Medical University; First Hospital, Fourth Military Medical University

TITLE: "Experiences in the Treatment of Electric Burns"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 72-75

ABSTRACT: Problems in treating electric burns are discussed on the basis of 224 cases treated by the concerned units. Characteristics of electric burns are pointed out, including the facts that the burns usually cover a small area but are deep, that there are many separate wounds, that scarring occurs and that damage to blood vessels and hemorrhaging may occur because blood is a good conductor. Early treatment, including treatment of shock and excision of scabs to reduce pressure, is discussed. Excision of dead tissue and wound recovery are also discussed. Limb amputation is advised when there is extensive necrosis, when there is severe infection threatening life and when there is severe damage to blood vessels, nerves and bone tissue. Other

[continuation of CHUNG-HUA WAI-K'O TSA-CHIH No 2, 20 Apr 78 pp 72-75]

factors discussed in connection with amputation include how to determine the extent of amputation, the optimum time for performing amputation and the necessity for exercising caution for occurrence of hemorrhage. Treatment of electric burns of specific regions is also discussed, including electric burns of the forehead, neck, chest, abdomen, perineum and urethra.

AUTHOR: CHANG Ti-sheng [1728 3321 3932]  
YANG Tseng-nien [2799 1073 1628]  
SHIH Hao-jan [2457 3185 3544]

ORG: CHANG of Anaplastic Surgery Department, Ninth Hospital, Shanghai Second Medical College; YANG and SHIH of Anaplasty Group, Burn Department, Jui-chin Hospital, Shanghai Second Medical College

TITLE: "Prevention and Treatment of Scars of the Face, Neck and Hands after Extensive Burns"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 76-79

ABSTRACT: The authors discuss the knowledge they have gained and the problems they have encountered in the course of plastic surgery for burn wounds. In early treatment of facial burns, they recommend scraping of scars and skin transplant at an early time in second degree burns. In third degree burns, surgical removal of eschars is avoided in order to prevent infection. Early grafts for palpebral burns are recommended and special care to avoid infection and damage of deeper tissues is suggested in ear burns. Procedures for treating late scar contracture of burns of the face and neck are presented. There is a brief case presentation, with photographs before and after

[continuation of CHUNG-HUA WAI-K'O TSA-CHIH No 2, 20 Apr 78 pp 76-79]

treatment, of a 30-year old male who had suffered extensive chemical burns of the face. The importance of early treatment of deep burns of the hands is stressed. In regard to later restoration of scar contracture after burns of the hands, the authors discuss selection of time for treatment and problems of surgical technique. The authors also take up the problem of insufficient skin for autografts in extensive burns. Article includes 10 photographs of burn cases.

AUTHOR: None

ORG: Burn Unit, Chishuit'an Hospital, Peking

TITLE: "Successful Treatment of a Child with Third Degree Burns Over Ninety-Four Percent of the Body"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 80-82 (photographs, p 8 of backplates)

ABSTRACT: The patient was a girl 2 years and 6 months of age who was burned by fire on 27 May 1973. She was hospitalized 2 hours after being burned. Ninety-eight percent of her body was burned, with third degree burns accounting for 94% of the area. She also suffered from moderately severe respiratory tract burn. Following hospitalization, she was given treatment to prevent shock and a tracheotomy was performed. During the first 24 hours she was given a total of 2720 ml of fluid transfusion and 1250 ml of colloid. Total fluid transfusion during the second 24-hour period amounted to 1960 ml. On the 5th day after the burn, dry eschars were removed from the chest and a skin graft was made. On the 9th day, eschars were removed from the limbs and skin was transplanted from the soles of her feet, which had not been burned. Natural shedding of eschars was allowed to occur in other third degree burn areas, with healing having

[continuation of CHUNG-HUA WAI-K'O TSA-CHIH No 2, 20 Apr 78 pp 80-82]

occurred by 2 months after the burn was sustained. Septicemia developed three times in the first two months after the patient was burned. Myocarditis and other cardiac complications also occurred. However, complete recovery was achieved with antibiotics. Growth and development of the child have been good subsequently. A full discussion of the case is presented. There are 5 photographs.

AUTHOR: None

ORG: Burn Research Unit, Anhwei Medical College; Pharmacology Teaching and Research Group, Anhwei Medical College

TITLE: "An Experimental Study of the Effects of a Traditional Chinese Anti-Shock Mixture and Burn Paste on Scalds"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 83-86

ABSTRACT: A study on the shock preventing effects of the preparation was studied using 62 male mice. The preparation was administered by stomach tube and the backs of the mice were scalded with water at 70° C. Survival time in the treated group was significantly longer than in the control group. Survival time in rats scalded with water at 90° C was also longer than in the control group. The anti-shock preparation was also found to be highly effective in preventing exudation. The preparation also reduced damage to minute blood vessels in living animals. Article includes 5 tables and 2 figures.

AUTHOR: CH'EN Pi [7115 3880]  
T'UNG Chien-hua [4547 1696 0553]  
WANG Liang-neng [3076 5328 5174]

ORG: Department of Plastic Surgery, First Hospital, Fourth Military Medical College

TITLE: "An Experimental Study of the Effects of Concentrated Decoction of *Sanguisorba officinalis* L., *Bletilla striata* (Thunb.) and *Lonicera japonica* (Thunb.) in burns"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 87-88

ABSTRACT: A decoction was prepared using S. officinalis, B. striata and L. japonica and other drugs. Sodium benzoate was added to prevent spoilage. Second degree burns were produced on the backs of rats and decoction applied. Macroscopic observations indicated that wounds in the experimental groups were drier, there was less exudate and the diameter of swelling was less than in the control group. Less evaporation of water occurred in the experimental group than in the control group. In experiments on prevention of early death due to burns in mice, of 53 mice in the experimental group, 20 (37.7%) died, whereas 30 (56.6%) of the 53 mice in the control group died. Article includes 2 tables and 1 photograph.

AUTHOR: HSU Shao-t'ing [5171 1421 3060]

ORG: General Hospital, Peking Unit, Chinese People's Liberation Army

TITLE: "Classification of and Principles of Treatment for Fractures of the Pelvis Caused by Earthquakes"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 89-92

ABSTRACT: The article is based on a study of 146 cases of fractures of the pelvis. Of the 146 cases, 105 were of the compression type, 11 were of the separation type and 30 were of an intermediate type. The mechanisms of injury in each type are discussed. Results of treatment are discussed for cases involving dislocation of the sacroiliac articulation, injury to the ligaments of the sacroiliac articulation, linear fractures of the sacral foramina and linear fractures of the ala ossis ilii. Article includes 1 table and 3 line drawings. There are reproductions of 4 X-ray photographs on page 9 of the backplates.



AUTHOR: HSU Hsin-hsiang [1776 5450 7449]  
CHIANG Hung-chih [1203 7703 1807]

ORG: Osteology Department, Third Teaching Hospital, Kirin Medical College

TITLE: "Combined Traditional Chinese and Western Treatment in Fractures of the Medial Epicondyle of the Humerus Associated with Dislocation of the Elbow"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 93-94

ABSTRACT: The authors discuss the methods of treatment that they used in 131 cases of fracture of the medial epicondyle of the humerus, including 20 cases of dislocation of the elbow, from September 1970 to December 1975. Two methods of surgical resetting are described and illustrated in figures. The case of 14-year old boy is presented. One year after treatment, the fracture was found to have healed well and normal function of the elbow joint had been recovered. Reproductions of 8 X-ray plates made at various times during and after the course of treatment in this case are shown (backplates, pp 8-9). Setting with splints is discussed. In addition, the results of treatment in 24 cases of fractures of the medial epicondyle of the humerus accompanied by dislocation of the elbow are presented. Of these cases, success was achieved in 20 cases. One brief case presentation is cited.

AUTHOR: WU Chih-k'ang [0702 0037 1660]  
LU Shih-pi [4151 0013 3880]

ORG: Osteology Department, General Hospital of the Chinese People's Liberation Army

TITLE: "Injury of Accessory Nerves"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 95-97

ABSTRACT: The authors discuss the results of diagnosis and treatment in 8 cases of accessory nerve injury treated since 1963. General methods of diagnosis are discussed and details of the 8 cases are presented. DeWar's operation was performed 6 times in 4 of the cases. Since the majority of cases of accessory nerve injury occur during surgery, surgeons are advised to exercise caution when performing surgery in the region of the accessory nerves. The authors stress the importance of early treatment and an evaluation of DeWar's operation. Article includes 3 photographs and 1 line drawing.

AUTHOR: None

ORG: Neurosurgery Department, General Hospital of the Chinese People's Liberation Army

TITLE: "Intracranial Hematoma as a Complication of Open-Heart Surgery"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 98-100

ABSTRACT: Detailed case histories of 5 cases treated from October 1974 to April 1977 are presented. Cures were obtained in 4 cases, with death occurring in 1 case. The patients included 1 boy and 4 girls from 8 to 21 years of age. The patient that died was an 8-year old boy who died of respiratory failure 17 days after surgery. The authors discuss diagnosis, treatment and mechanism of occurrence. They conclude that intracranial hematoma should be suspected following open heart surgery if the patient does not awaken after surgery, if the patient slips into a coma after awakening from anesthesia and if increase in intracranial blood pressure and symptoms of neurological disorder appear. In this case, prompt diagnosis and surgery are vital.

AUTHOR: None

ORG: Kidney Transplantation Group, Hua Shan Hospital, Shanghai First Medical College

TITLE: "Preliminary Recognition and Management of Acute Rejection After Kidney Transplantation"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 101-103

ABSTRACT: Of 8 kidney transplantations performed since 1970, 4 were not successful. In the other 4 cases, gradual improvement in kidney function occurred. Detailed case histories are presented of 2 cases in which there were clinical signs of acute rejection reaction on 9 occasions. The authors noted 4 types of manifestations of the acute rejection reaction: (1) instances in which systemic symptoms predominate, (2) instances in which local symptoms predominate, (3) instances in which accumulation of water and sodium are the predominant manifestations and (4) instances in which decrease in kidney function is the predominant sign. Treatments included massive injections of hormones, the use of cyclic phosphoamides, local radiologic treatment of the transplantation area, the use of heparin and treatment with traditional Chinese drugs. Article includes 1 figure.

AUTHOR: None

ORG: Urology Department and Department of Internal Medicine, Shanghai First People's Hospital

TITLE: "Blood Dialysis Treatment in Chronic Renal Failure"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 104-106

ABSTRACT: Blood dialysis treatments have been given in 9 cases of chronic renal failure since February 1974, with 200 dialysis treatments having been given up to the end of August of 1974. Eight of these cases were ones in which chronic nephritis with constantly increasing urea nitrogen had developed after surgery. Varying degrees of hypertension were also present in these cases. The other case involved pyelonephritis, accumulation of fluid in the kidneys, atrophy of the renal parenchyma and chronic uremia. Combined treatment with traditional Chinese and Western methods was used in 7 of these cases following hospitalization. Preliminary observations indicate that increases in urea nitrogen and muscle anhydrides were slower in patients treated with both blood dialysis and Chinese medicines than in patients not treated with Chinese drugs. Authors discuss methods and effects of dialysis in detail. Article includes 1 table.

AUTHOR: CH'EN Chi-sheng [7115 4480 5110]  
TU Hsiao-feng [2629 2556 1496]  
CHANG Hsi-lin [1728 6932 7792]

ORG: Surgery Teaching and Research Section, Lu-chou Medical Corpsmen's Hospital, Szechuan

TITLE: "Spontaneous Rupture of the Urinary Bladder and Acute Abdomen"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 107-108

ABSTRACT: Detailed case presentations of 3 cases of spontaneous rupture of the urinary bladder encountered by the authors are given. The ruptures in these cases were induced by acute myelitis and by ramitis and tuberculosis in the lumbosacral region. The patients were all males, 46, 33 and 47 years in age. Detailed records of symptoms, results of physical and blood chemistry tests and courses of treatment are presented. The authors discuss the etiology and pathology of the condition, its diagnosis and its treatment.

AUTHOR: None

ORG: Surgery Department, Second Hospital, Hsin-i Medical College, Hopeh

TITLE: "Analysis of Factors Affecting Recurrence and Distant Metastasis Following Surgery for Carcinoma of the Breast"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 109-111

ABSTRACT: Of 212 cases of carcinoma of the breast examined and treated from 1965 to 1972, there were recurrences and distant metastases in 69 cases. The authors analyzed the factors that might lead to recurrence and distant metastasis on the basis of these cases. Radical surgery was performed in 192 cases, simple mastectomy in 17 cases and simple mastectomy and excision of axillary lymph nodes in 5 cases. Local recurrences were found in 22 cases. Metastases were most frequent in the liver (12 cases) and lungs (21 cases). Results are reported of studies of the relationships between recurrences and metastases and duration of illness, size of the carcinoma, location of the primary carcinoma, clinical stage, method of surgery, metastasis to axillary lymph nodes and pathological type. Article includes 7 tables.

AUTHOR: KAO Ken-wu [7559 2704 0063]  
CHIANG Chun-pen [1203 0971 2609]  
P'AN Cheng-ch'ing [3382 2973 3237]  
CHU Shih-ch'in [2612 0099 2953]  
HUANG Li-lu [7806 4539 7216]  
CH'ENG Yu-sheng [2052 0645 3932]

ORG: KAO, P'AN, CHU, HUANG and CH'ENG of Surgery Department, Second Hospital Chungking Medical College; CHIANG of Human Anatomy Teaching and Research Department, Chungking Medical College

Title: "Autogenous Venous H-Graft of the Inferior Vena Cava and the Superior Mesenteric Vein"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 112-114

ABSTRACT: Use of this technique was begun in February 1976 following observations of the superior mesenteric vein in 22 autopsy cases and numerous trials in dogs. The authors describe their observations in the 22 autopsy cases in detail. To date, the technique has been used in 6 cases (4 males; 2 females) all of whom were suffering from cirrhosis of the liver, portal vein hypertension,

[continuation of CHUNG-HUA WAI-K'O TSA-CHIH No 2, 20 Apr 78 pp 112-114]

varicosity of the esophageal veins and history of hemorrhage. In 5 of the cases there was ascites as well as evident splenomegaly accompanied by increased spleen function. The results and surgical procedure are described in detail. The authors also discuss various problems involved with this type of surgery and the knowledge that they have gained about the technique.

AUTHOR: None

ORG: Surgery Department, First Hospital, Soochow Medical College

TITLE: "Surgical Treatment for Splenomegaly in Late Schistosomiasis in Rural Areas"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 115-117

ABSTRACT: Since 1965, 12 teams medical teams have been sent to rural villages and splenectomy has been used to treat splenomegaly in late schistosomiasis in 1936 cases. In 1974, family visits were made to 801 of these patients. There were 306 males and 495 females ranging from 11 to 64 years in age. Following surgery, 610 of the patients felt stronger than before surgery. Four patients died during surgery. Article discusses conditions suited to this type of surgery, the surgical procedure, complications of surgery, treatment of associated conditions requiring surgery, hemorrhage following surgery and factors contributing to death in the cases that did not survive.

AUTHOR: WANG Hsiu-chung [3769 0208 1813]  
LI Kung-ts'ai [2621 1872 2088]

ORG: Surgery Department, Second Hospital, Sian Medical College

TITLE: "Gastro-Cystostomy for Pancreatic Cysts"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 pp 118-119

ABSTRACT: The postoperative death rate in surgery for pancreatic cysts has been over 5 percent. The authors devised the gastro-cystostomy technique in 1965 and have used it with satisfactory results in 6 cases up to 1975. There were 3 males and 3 females ranging from 4 to 46 years in age. Postoperative follow-up studies were over a 1 to 3 year period in 3 cases and over a 4 to 10 year period in 3 cases. In all cases, symptoms disappeared and there were no recurrences of pancreatic cysts. Two case histories, one of a 28-year old male and one of 6-year old male are presented. The surgical procedure is described in detail and is illustrated in a figure.

AUTHOR: YANG Ch'uan [2799 3123]

ORG: Surgery Department, Central Hospital, Mutanchiang Forestry Administrative Bureau

TITLE: "Torsion of Afferent and Efferent Jejunal Loops - A Rare Complication Following Gastrectomy"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 pp 120-121

ABSTRACT: Author reports on 2 cases in which torsion of afferent and efferent jejunal loops occurred following gastrectomy. Both patients were male. In one case, gastrectomy was performed because of perforating gastric ulcers, and in the other case, it was performed because of bleeding ulcers. Severe abdominal symptoms accompanied by nausea and vomiting occurred in both cases 4 to 5 days after surgery. In both cases, corrective anastomosis was performed. In the first case, no complications have developed over the 3-year period since surgery. In the second case, which occurred in 1977, the patient was discharged as cured 40 days after the corrective surgery. The author discusses treatment and prevention of this condition. Article includes two figures illustrating this condition.

AUTHOR: CHUANG Shih-ts'ai [5445 0013 2088]

ORG: Thoracic Surgery Department, Honan Medical College

TITLE: "Some Improvements in Pneumonectomy Under Acupuncture Anesthesia"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 p 122

ABSTRACT: In order to increase the effectiveness of pneumonectomy under acupuncture anesthesia, a number of improvements were made in the surgical technique and were found to be satisfactory in observations of 17 cases. The improved techniques were concerned with handling of the muscles of the thoracic wall, treatment of the trachea and opening and closing the thoracic cavity. The improved techniques resulted in a shorter period of surgery, with the entire procedure being completed in one to one and one-half hours. Further advantages of the technique are that transfusions are not required, anesthesia is simple and safe, complicated mechanical equipment is not necessary and postoperative management is simple.

AUTHOR: OUYANG Chia [2962-7122 3946]  
CH'IAO Jo-yu [0829 5387 1946]  
HAN Hsiang-p'u [7281 4382 2528]  
MI Chi-t'i [4717 0679 2251]  
LI T'ing-t'ai [2621 1694 1132]  
WANG Hsiao-hsien [3769 1321 0341]  
CHAO Hsiao-chai [6932 4607 7872]

ORG: OUYANG, CH'IAO, MI, LI, WANG and CHAO (carpenter) all of Osteology Department, Sinkiang Medical College Hospital; HAN is a postgraduate medical student at the Huoch'eng Hsien People's Hospital

TITLE: "Manufacture and Use of a Simple Wooden Frame for Hip Nailing"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 pp 123-124

ABSTRACT: The device was designed and built in July 1974 and was found to simplify hip pinning surgery. It consists of a bar with foot rests attached at right angles to a bar that is placed between the legs of the patient. The latter bar contains perforations so that the bar equipped with the foot rests can be adjusted to conform to the length of the patient's legs. The feet of the patient are strapped to the foot rests. Satisfactory results have been obtained in 35 cases. Article includes 3 figures illustrating the device.

AUTHOR: None

ORG: Thoracic Surgery Department, Department of Internal Medicine and Pathology  
Department, People's Hospital Peking Medical College

TITLE: "Clinical Pathology Conference - Death from Paroxysmal Dyspnea Ten Years  
and Four Months After Resection of Esophageal Cancer"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 pp 125-128

ABSTRACT: Case history is presented of a patient who died of paroxysmal dyspnea  
10 years and 4 months after resection of esophageal cancer. The patient had  
undergone resection of esophageal cancer in September 1965 and had experienced  
gastrointestinal distress at various times thereafter. On 5 February 1976, he  
came for emergency treatment complaining of chest pain and respiratory distress.  
Eleven days previously he had developed a fever and a slight cough accompanied  
by chest pain. Blood pressure fell to 80/60 and his total leukocyte count  
was 26,800. He was treated with intravenous transfusions and various drugs.  
However, blood pressure continued to fall and he died of respiratory arrest.  
Clinical, autopsy and pathological findings are discussed. Backplate (p 10)  
includes 5 photographs of X-rays and autopsy materials.

AUTHOR: YEN Hung-fa [7051 7703 3127]

ORG: 155th Field Hospital, Chinese People's Liberation Army

TITLE: "A Case of Injury to the Optic Thalamus"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 p 71

ABSTRACT: Case history is presented of 21-year old male hospitalized on 2  
February 1976 with a head wound. Surgery was performed as subdural hematoma  
was suspected. After surgery, his coma deepened and there was no change in  
his pupillary response. Injury to the optic thalamus was suspected. The  
condition was treated and plastic surgery performed to reconstruct the damaged  
area of his skull. A recent examination indicated that his intellectual  
capacity was close to normal, that his speech was fluent and that he complains  
of mild headaches. Urination and defecation are normal. However, ptosis of  
the right eyelid is present and the eyeball is depressed. Seven characteristic  
diagnostic symptoms of injury of the optic thalamus are presented and optimum  
methods of treatment are discussed.



AUTHOR: CH'OU Chi-sheng [0092 0679 3932]  
YU Chiang-lin [3266 3068 2651]

ORG: Hsuehchow Medical College Hospital

TITLE: "A Case of Lipotrophy of the Renal Capsule"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 p 75

ABSTRACT: Case history of a 52-year old male hospitalized on 28 June 1968 is presented. Eight days previously, the patient had experienced pain on the left side of his abdomen radiating to the inguinal area and had noticed blood in his urine. Physical examination and blood chemistry tests were normal. Other tests indicated multiple renal cysts of the left kidney and chronic pyelonephritis of the left kidney. Nephrectomy of the left kidney was performed on 5 July and signs of extensive lipotrophy were found. A diagnosis of fibrous lipotrophy and mild interstitial nephritis of the left kidney was made. A discussion of the case is also presented.

AUTHOR: SUN Jen-ch'uan [1327 0088 3123]  
LI Ch'ing [2621 1987]

ORG: Surgery Department, Yenhua Northern District People's Hospital, Shansi

TITLE: "Stomach Cancer Complicated with Aerocele of the Small Intestine"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 p 86

ABSTRACT: Case history is presented of 21-year old female who had previously been treated without success for free subdiaphragmatic gas. She had been treated with combined Chinese and Western techniques and had experienced severe vomiting. X-ray and other examinations indicated a diagnosis of obstruction of the pylorus complicated by rupture of intestinal aerocele. When exploratory surgery was performed, a tumor was found encircling the pylorus. Gastrectomy was performed. Pathological examination indicated infiltrative carcinoma of the stomach. The course following surgery was favorable and there were no findings of note on reexamination six months after surgery.

AUTHOR: CH'IH Chao [6688 3564]

ORG: Pediatric Surgery Department, Tsingtao Medical College Hospital

TITLE: "Use of the Rectal Finger Examination Stimulation Method to Treat Acute Nonorganic Retention of Urine in Children"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 p 97

ABSTRACT: Good results have been obtained by using the rectal finger examination stimulation method to treat acute nonorganic retention of urine in children. The glove finger is coated with soap solution and inserted into the rectum to stimulate defecation. Urination usually occurs on defecation. The method has been used in more than 40 cases. Of 32 cases in which there are complete records, success was achieved in 30 cases, with failure in 2 cases. Success was also achieved in these 2 cases following soap enema. The method is also felt to be helpful in ascertaining etiological factors in retention of urine.

AUTHOR: LI Chun-ch'ing [2621 0193 0615]

ORG: Urological Surgery Department, Honan Medical College Hospital

TITLE: "Use of Skin Flap Exchange to Treat Suburethra Fissure"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 p 100

ABSTRACT: Since 1973, surgeons in the Urological Surgery Department have used the skin flap exchange technique to treat 18 cases of congenital suburethral fissure. Details of the technique are described and the superior points of the technique are listed. Factors contributing to increasing the success rate are also listed. Article includes two figures illustrating the technique.

AUTHOR: YU Yung-hsien [0060 3057 7359]  
WANG Ao-ko [3769 2407 7041]

ORG: YU of Thoracic Surgery Department, WANG of Pathology Department,  
Chin-chou Medical College Hospital

TITLE: "A Case of Fibrosarcoma of the Diaphragmatic Muscle"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 p 111

ABSTRACT: The patient, a 60-year old male, was hospitalized in December 1976. For the previous two years he had complained of pain on the left side of his chest extending to the left shoulder but had not suffered from fever or cough. X-ray and other examinations indicated a diagnosis of tumor of the left side of the diaphragmatic muscle. Exploratory thoracic surgery was performed on 21 December and a tumor affecting two-thirds of the left side of the diaphragmatic muscle was found. The tumor was completely excised, including portions of the diaphragmatic muscle. The patient was discharged two weeks later and was in good health six months later. Histopathological examination of the tumor indicated a diagnosis of fibrosarcoma. The case presentation is followed by a brief discussion of fibrosarcoma of the diaphragmatic muscle.

AUTHOR: WEN Hsi-lo [5113 0823 2867]

ORG: Loyang Regional Osteopathy Hospital

TITLE: "A Report on Two Cases of Glomangioma"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in  
Chinese No 2, 20 Apr 78 p 119

ABSTRACT: Two cases of glomangioma are reported. The first case was a 35-year old woman who consulted the clinic because of long-standing pain in her middle finger in May 1969. X-ray examination indicated presence of a possible tumor. The tumor was removed surgically and was found to be a glomangioma. There has been no recurrence over a 7-year period. The second case was a 39-year old woman who consulted the clinic in September 1975 complaining of pain in the little finger of her left hand for 10 years. X-ray examination indicated a potential tumor. On surgical removal, it was found to be a glomangioma. An X-ray photograph of the tumor in this case is shown.

AUTHOR: HSIA Lien-po [1115 1670 0590]

ORG: Public Health Station, Shanghai Tobacco Industry Machinery Manufacturing Plant

TITLE: "Myotenositis of the Biceps Brachii"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 p 121

ABSTRACT: Myotenositis of the biceps brachii is a condition frequently seen among factory workers. Of 1151 workers examined, 69 were found to be suffering from the condition. The majority of patients suffer from pain and tenderness and often have a history of injury. Author describes a test which can be used to confirm diagnosis. Of the 69 cases investigated, 54 were men and 15 were women. Bench workers and lathe operators were among the most frequently afflicted. The ratio of right to left arm affliction was six to one. The authors discuss his studies of the mechanism of onset of the condition and methods of treatment.

AUTHOR: SHIH Yueh-han [0670 4766 3352]  
CHIN Yu-hua [6855 3768 5478]  
LU Yu-heng [7120 2589 1854]

ORG: Surgery Department, Third People's Hospital, Nanking City

TITLE: "A Case of Retrocecal Extraperitoneal Small Appendix Accompanied by Acute Inflammation"

SOURCE: Peking CHUNG-HUA WAI-K'O TSA-CHIH [CHINESE JOURNAL OF SURGERY] in Chinese No 2, 20 Apr 78 p 128

ABSTRACT: The patient, a 49-year old male was hospitalized on 1 September 1977. The patient was suffering from abdominal pain, nausea, vomiting and fever. On examination and testing, a diagnosis of acute appendicitis was made. On surgery, a projection 0.6 x 0.5 cm in size was found on the inner side to the posterior of the cecum. The pathology report indicated phlegmonous appendicitis accompanied by periappendicitis.

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